#### **EXHIBIT D**

#### LITHIUMHUB'S INFRINGEMENT ANALYSIS

### U.S. Patent No. 9,412,994 – LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery Independent Claims 1 and 14

LithiumHub provides evidence of infringement of independent claims 1 and 14 of U.S. Patent No. 9,412,994 (hereinafter "the '994 patent") by LiTime. In support thereof, LithiumHub provides the following claim charts.

"Accused Products" as used herein refers to at least LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery and the Accused Products enumerated in the Complaint. These claim charts demonstrate LiTime's infringement by comparing each element of the asserted claims to corresponding components, aspects, and/or features of the Accused Products. These claim charts are not intended to constitute an expert report on infringement. These claim charts include information provided by way of example, and not by way of limitation.

Unless otherwise noted, LithiumHub contends that LiTime directly infringes the '994 patent in violation of 35 U.S.C. § 271(a) by selling, offering to sell, making, using, and/or importing the Accused Products. The following exemplary analysis demonstrates that infringement. Unless otherwise noted, LithiumHub further contends that the evidence below supports a finding of indirect infringement under 35 U.S.C. §§ 271(b) and/or (c), in conjunction with other evidence of liability under one or more of those subsections. LiTime makes, uses, sells, imports, or offers for sale in the United States, or has made, used, sold, imported, or offered for sale in the past, without authority, or induces others to make, use, sell, import, or offer for sale in the past, without authority products, equipment, or services that infringe claims 1 and 14 of the '994 patent, including without limitation, the Accused Products.

Unless otherwise noted, LithiumHub believes and contends that each element of each claim asserted herein is literally met through LiTime's provision of the Accused Products. However, to the extent that LiTime attempts to allege that any asserted claim element is not literally met, LithiumHub believes and contends that such elements are met under the doctrine of equivalents. More specifically, in its investigation and analysis of the Accused Products, LithiumHub did not identify any substantial differences between the elements of the patent claims and the corresponding features of the Accused Products, as set forth herein. In each instance, the identified feature of the Accused Products performs at least substantially the same function in substantially the same way to achieve substantially the same result as the corresponding claim element.

To the extent the chart of an asserted claim relies on evidence about certain specifically identified Accused Products, LithiumHub asserts that, on information and belief, any similarly functioning Accused Product also infringes the charted claim. LithiumHub reserves the right to amend this infringement analysis based on other products made, used, sold, imported, or offered for sale by LiTime. LithiumHub further reserves the right to amend this infringement analysis by adding, subtracting, or otherwise modifying content in the "Accused Products" column of each chart.

US9,412,994 Claim Element	LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery					
Claim 1			·			
[1p] A battery pack for driving an electrical device in a 12 volt to 120 volt operating system, said	To the extent the preamble is limiting, the LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery is a battery pack for driving an electrical device in a 12 volt to 120 volt operating system.					
battery pack having a positive terminal and a negative	Group 24	Deep Cycle LiFePO4 Lithium Battery				
terminal, comprising:		Affordable BCI group 24 deep cycle battery, Compatible with All Types of RVs on the Market  2/3 Lighter, 1/4 Smaller, 2X energy of 12V100Ah Lead-Acid battery				
		1280Wh of Energy, 1280W of Outp	2004-0000000000000000000000000000000000			
	Li Time	8X Higher Mass Energy Density (60     Battery)	.95Wh/lbs VS. 7.23Wh/lbs of Group 24 AGM			
	urero. 100	EV Grade-A Cells, 4000+ cycles @1	100%DOD			
	12.000 E	LiTime's 100A BMS (over-charging,	over-discharging, over-current, over-temperature,			
		and short-circuit protection)				
	1502	<ul> <li>100A Continuous Discharge/Charge</li> <li>10+ Years Lifespan &amp; 5 Years Warra</li> </ul>	e Current, 400A/1S Continuous Discharge Current			
		20.48kWh Expandable Energy (Max				
		10X Charging Efficiency, 2X Operating Time				
	ST CEN TO SAFE	Suitable for RVs/Camping/Trolling	Motor/Lawnmower/Solar/Home Storage/Off-grid			
	4 4 5	IP65 Waterproof				
		Clean/Eco-friendly/Cost-effective				
		Fast Delivery & Excellent Service				
		Low TCO & Zero Maintenance Fee				
	SPECS					
	BATTERY	Cell Type:	LiFePO4 Prismatic			
		Warranty:	5 Years			
		Cycle Life:	4000 cycles at 100% DOD, 6000 cycles at 80% DOD, 15,000 cycles at 60% DOD			
		Nominal Voltage:	12.8V			
		Rated Capacity:	100Ah			
		Energy:	1280Wh			
	Max. Expansion (Parallel & Series):		4P4S			
		Internal Resistance:	≤40mΩ			
		Certifications:	UL, FCC, CE, RoHS, UN38.3			
	Source: https://www.l	litime.com/products/12v-100ah	n-group-24-lithium-battery			



To the extent the preamble is limiting, the LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery has a positive terminal and a negative terminal.

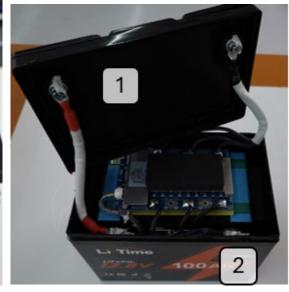


[1a] The LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery has a battery pack housing with a first portion (1) and a mating second portion (2).

a battery pack housing having at least a first portion and a mating second portion;

#### LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery





[1b] at least one lithium-based rechargeable cell within said housing, each such cell having a positive pole and a negative pole;

The LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery comprises at least one lithium-based rechargeable cell within said housing.

#### EV Grade-A LFP Cells, Accompany You Over 10+ Years

LiTime battery insists on using automotive quality LiFePO4 prismatic cells across its lithium battery portfolio. With the LiTime top-grade EV lithium iron phosphate cells, you can feel confident LiTime 12V 100Ah group 24 lithium battery will faithfully serve your energy needs for over 10 years. These eco-friendly cells have undergone rigorous testing to prove their exceptional strength and stability and can charge over 4000 life cycles at 100% DOD



#### LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery

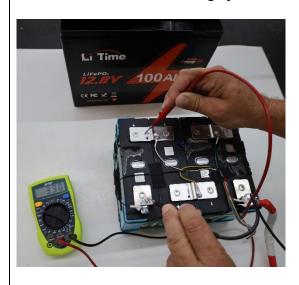






#### LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery

Additionally, for example, the polarity of each unit in a cell of the LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery was demonstrated as having a positive pole and a negative pole by using a multimeter to measure a voltage potential across the positive pole and a negative pole of a cell.



#### [1c-i]

a circuit board within said housing configured to balance each individual cell within said housing, and having a cutoff function incorporated therein, The LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery comprises a circuit board (2) within said housing configured to balance each individual cell within said housing and having a cutoff function incorporated therein.

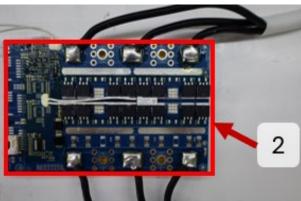
#### Power through Any Task with LiTime BMS

Featuring a 100A BMS, the LiTime 12V 100Ah group 24 lithium battery delivers unwavering power equal to life's most demanding duties. Its powerful BMS allows the stable operation of energy-intensive devices without constraint. Advanced protections against over-charging overlischarging, over-current, overheating and short-circuit safeguard both users and the internal chemistry from harm. You can depend on consistent electricity no matter the application or conditions. A 3% ultra-low self-discharging rate can reduce your maintenance fee, demining your cost as much as noxibility.



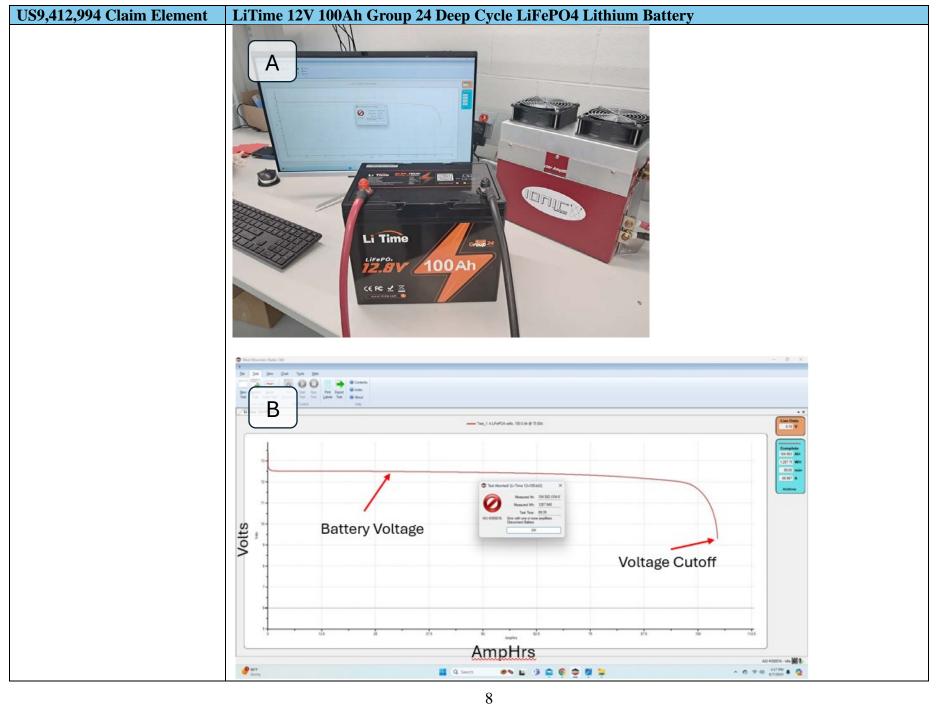
#### LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery

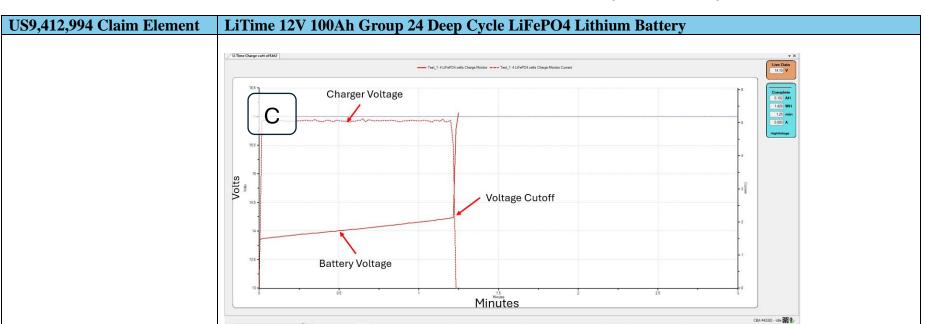




The LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery comprises a circuit board having a cutoff function incorporated therein.

For example, as demonstrated by connecting the battery terminals of the LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery to a computerized battery analyzer (*see* photo A below), the cutoff functionality is demonstrated by the termination of electrical current when the LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery was discharged below its rated voltage (*see* photo B below). Similarly, the cutoff functionality is also demonstrated by the termination of electrical current when the LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery was charged above its rated voltage (*see* photo C below).

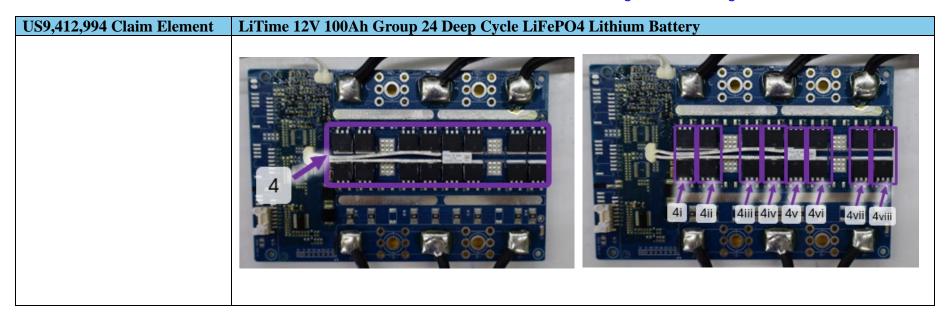


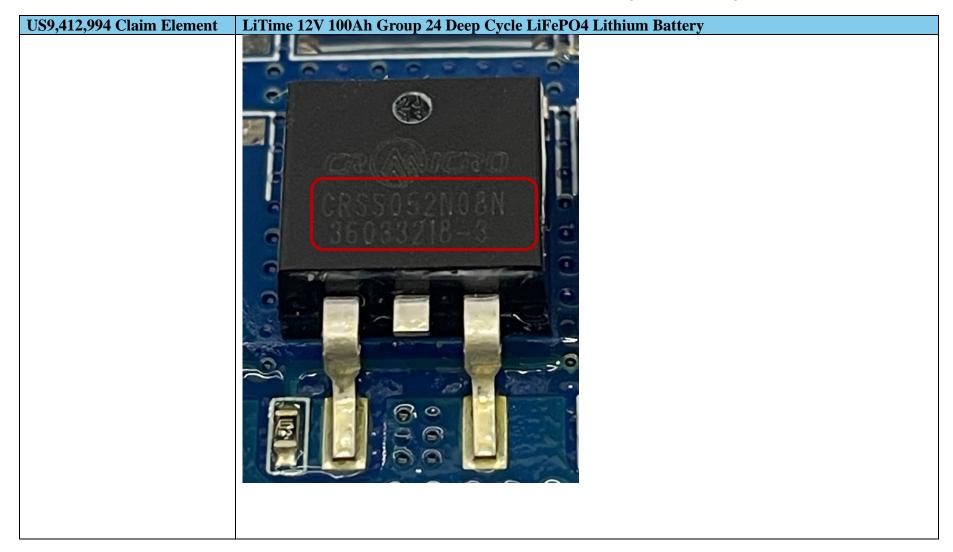


[1c-ii] said circuit board including a plurality of pairs of solid state switches with each pair of solid state switches connected in a parallel configuration to another pair of solid state switches,

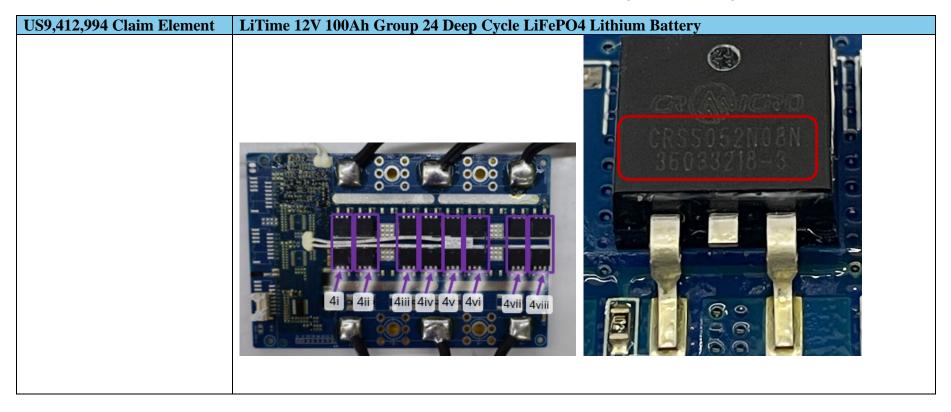
The circuit board (2) of the LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery includes a plurality of pairs of solid state switches (4) with each pair of solid state switches connected in a parallel configuration to another pair of solid state switches (e.g., 4i-4viii).

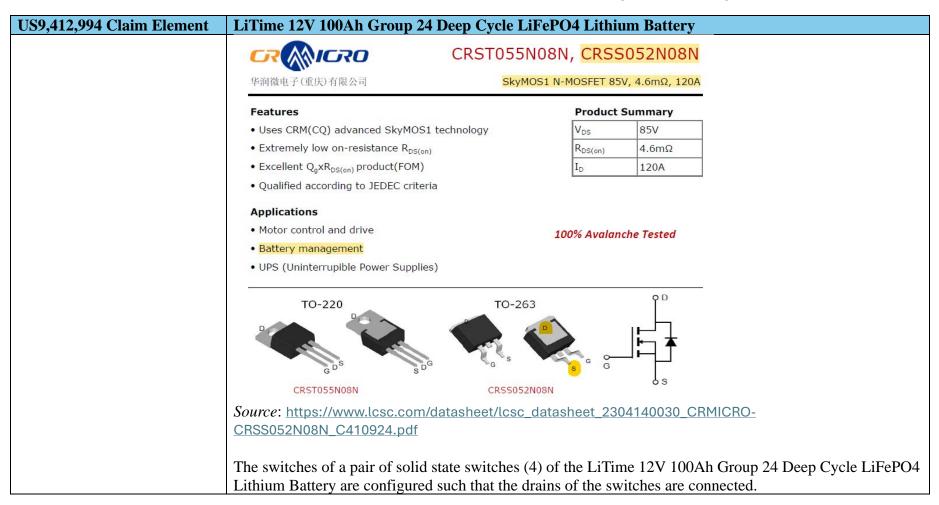


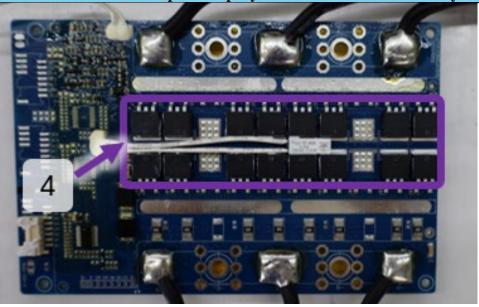


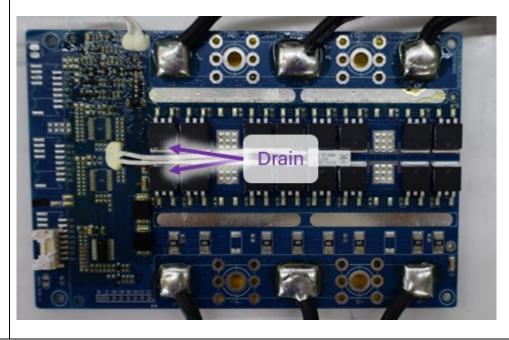


US9,412,994 Claim Element	LiTime 12V 100Ah Group 24	Deep Cycle LiFePO	4 Lithiu	m Battery			
	<b>に</b> アの (重庆) 有限公司	CRST055N08N	, CRSS				
	Features	ummary					
	Uses CRM(CQ) advanced SkyMOS1	technology	V <sub>DS</sub>	85V			
	<ul> <li>Extremely low on-resistance R<sub>DS(on)</sub></li> </ul>		R <sub>DS(on)</sub>	4.6mΩ			
	<ul> <li>Excellent Q<sub>g</sub>×R<sub>DS(on)</sub> product(FOM)</li> </ul>		ID	120A			
	<ul> <li>Qualified according to JEDEC criteri</li> </ul>	a					
	Applications						
	Motor control and drive	10	0% Avalanc	he Tested			
	<ul> <li>Battery management</li> </ul>						
	UPS (Uninterrupible Power Supplies	5)					
	TO-220 TO-263						
	CRST055N08N	CRSS052N08N	s G	Ji— J			
	Source: https://www.lcsc.com/c CRSS052N08N C410924.pdf	datasheet/lcsc_datas	heet_2304	1140030_CRN	IICRO-		
[1c-iii] each switch having a source and a drain, the switches of a	Each switch (4) of the LiTime 1 (i.e., "S") and a drain (i.e., "D" either the drains of the switches	). The switches of a	oair of sol	id state switch	ches being configured s		
pair of solid state switches being configured such that either the drains of the switches are connected or the							
sources of the switches are connected; and							



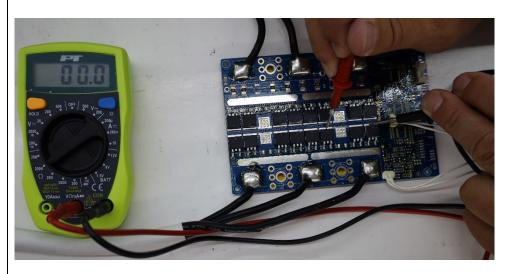


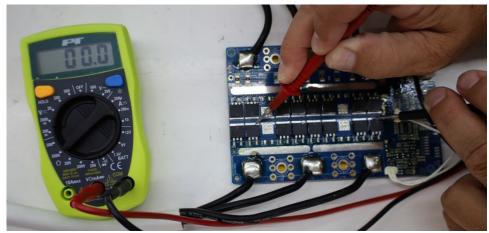




#### LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery

For example, as demonstrated by testing the electrical continuity using a multimeter, the drains of the switches of the LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery are connected, as shown by the nominal resistance measured between the drains of opposed MOSFETs.



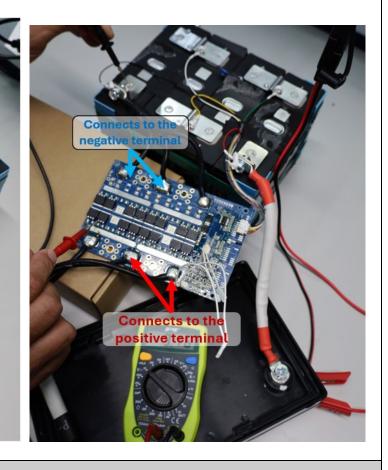


[1d] said parallel configuration of the plurality of solid state

The parallel configuration of the plurality of solid state switches (4) of the LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery are connected in series with the one or more cells (7) between the positive (10) and negative terminals (11) of the battery pack.

## US9,412,994 Claim Element switches being connected in series with said one or more cells between said positive and negative terminals of the battery pack. 100/

#### LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery



#### Claim 14

[14p] A battery pack for driving an electrical device in a 1 volt to 120 volt operating system, said battery pack comprising:

To the extent the preamble is limiting, the LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery is a battery pack for driving an electrical device in a 1 volt to 120 volt operating system.



#### LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery



#### [14a]

a battery pack housing having at least first and second mating portions, said housing having a positive terminal and a negative terminal; The LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery includes a battery pack housing having at least first (1) and second mating portions (2).





The housing of the LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery has a positive terminal and a negative terminal.

#### LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery



# [14b] at least one lithium-based rechargeable cell within said housing, said cell having a

positive pole and a negative

pole;

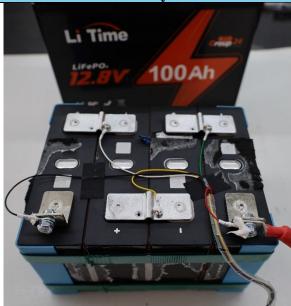
The LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery includes at least one lithium-based rechargeable cell within said housing.

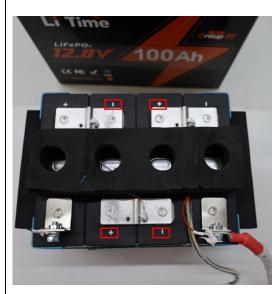
#### EV Grade-A LFP Cells, Accompany You Over 10+ Years

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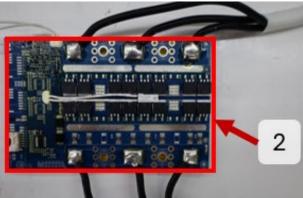
# Case 5:24-cv-00134-RWS Document 1-5 Filed 09/13/24 Page 23 of 34 PageID #: 113 US9,412,994 Claim Element LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery Additionally, for example, the polarity of each unit in a cell of the LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery was demonstrated as having a positive pole and a negative pole by using a multimeter to measure a voltage potential across the positive pole and a negative pole of a cell.

[14c-i] a circuit board within said housing having a cutoff function incorporated therein,

The LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery comprises a circuit board (2) within the housing.

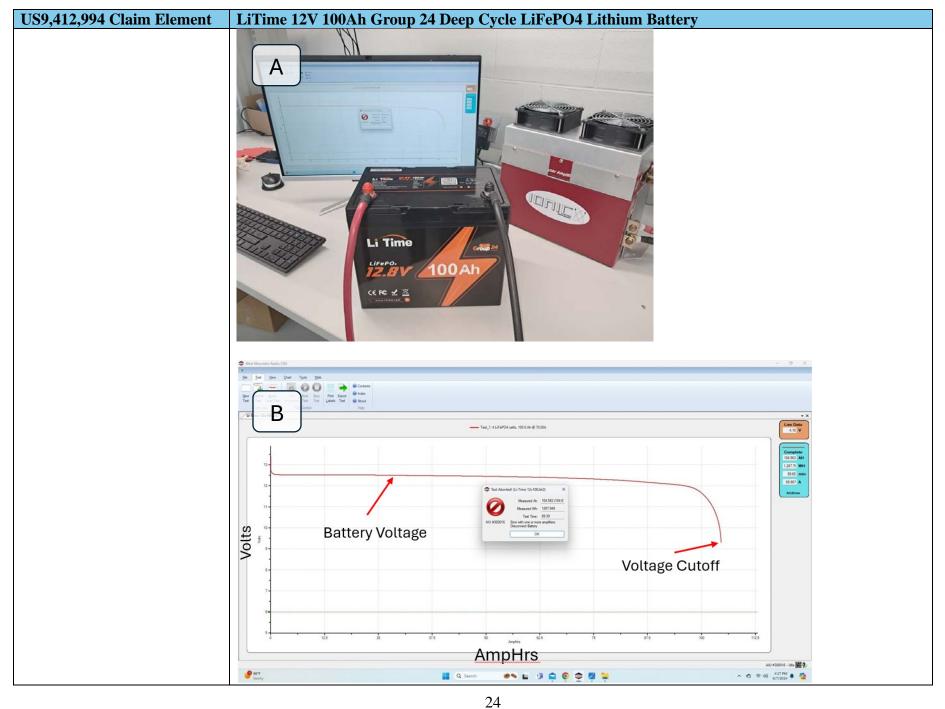


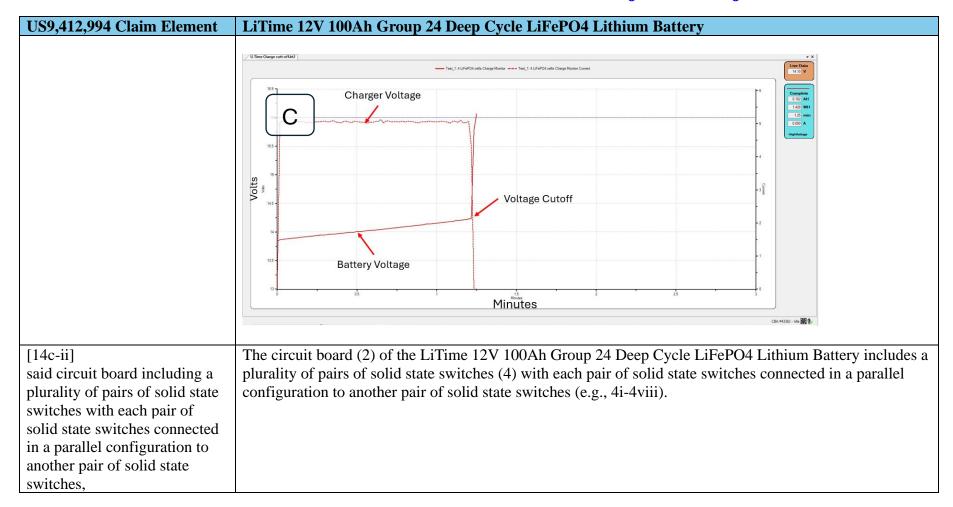




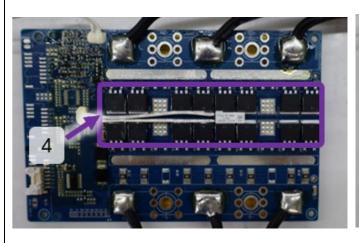
The LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery comprises a circuit board (2) having a cutoff function incorporated therein.

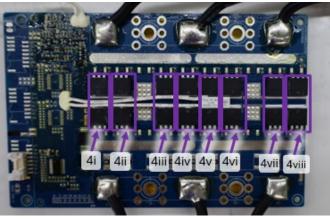
For example, as demonstrated by connecting the battery terminals of the LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery to a computerized battery analyzer (*see* photo A below), the cutoff functionality is demonstrated by the termination of electrical current when the LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery was discharged below its rated voltage (*see* photo B below). Similarly, the cutoff functionality is also demonstrated by the termination of electrical current when the LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery was charged above its rated voltage (*see* photo C below).

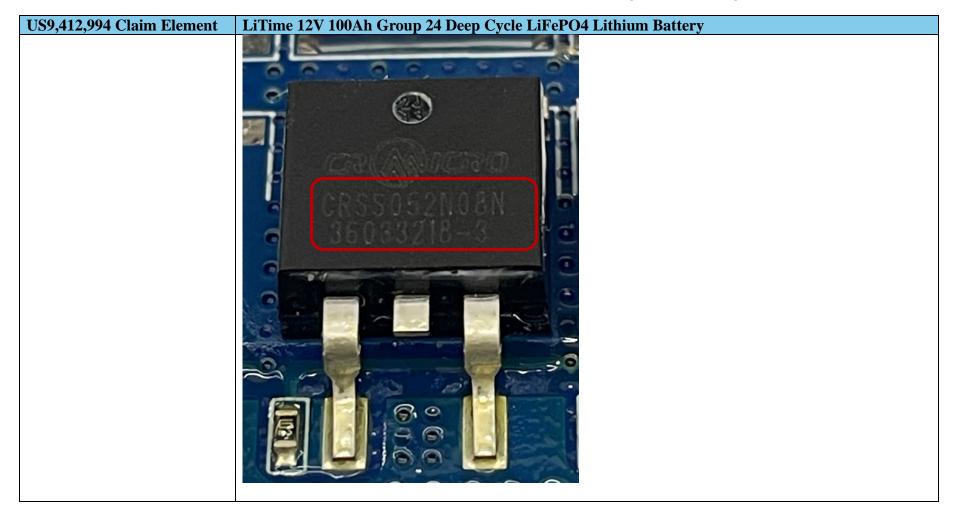




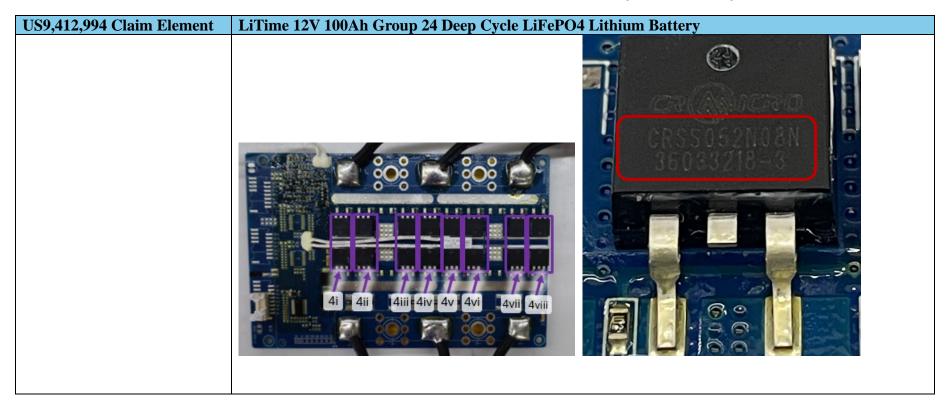


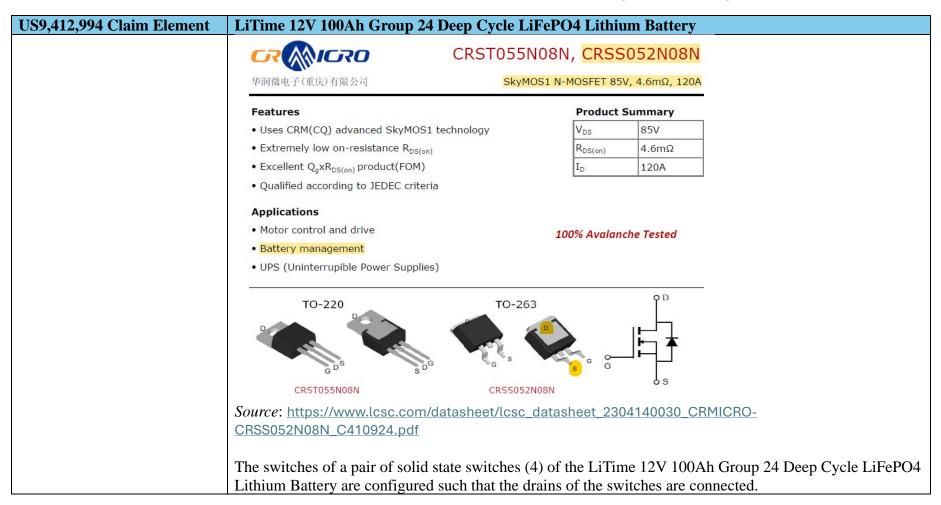




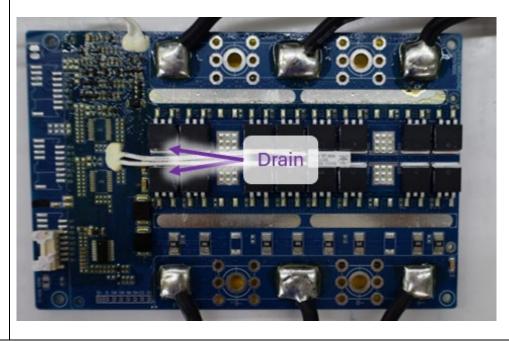


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US9,412,994 Claim Element	LiTime 12V 100Ah Group 24	Deep Cycle LiFeP	O4 Lithium	Battery	
	CR MICRO	CRST055N08	N, CRSS05	2N08N	
	华润徽电子(重庆)有限公司	SkyMOS1 N	N-MOSFET 85V, 4	6mΩ, 120A	
	Features	Product Summary			
	Uses CRM(CQ) advanced SkyMOS1		V <sub>DS</sub>	35V	
	Extremely low on-resistance R <sub>DS(on)</sub>	)	55(01)	1.6mΩ	
	Excellent Q <sub>g</sub> ×R <sub>DS(on)</sub> product(FOM)		I <sub>D</sub>	.20A	
	Qualified according to JEDEC criteri	ıa			
	Applications				
	Motor control and drive	1	100% Avalanche	Tested	
	Battery management     UPS (Uninterrupible Power Supplies	s)			
	- or o (orimical applied over papping)				
	TO-220	TO-263	s G		
	CRST055N08N	CRSS052N08N		O S	
	Source: https://www.lcsc.com/datasheet/lcsc_datasheet_2304140030_CRMICRO-				
	CRSS052N08N_C410924.pdf				
[14c-iii] each switch having a source and a drain, the switches of a	Each switch (4) of the LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery has a source (i.e., "S") and a drain (i.e., "D"). The switches of a pair of solid state switchers being configured such that either the drains of the switches are connected or the sources of the switches are connected				
pair of solid state switchers being configured such that					
either the drains of the					
switches are connected or the					
sources of the switches are					
connected; and					



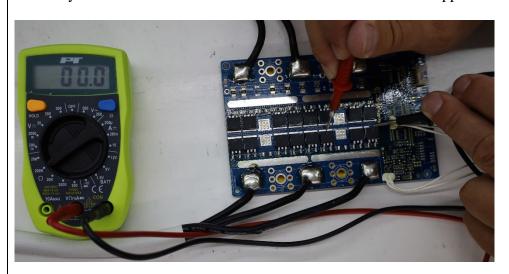


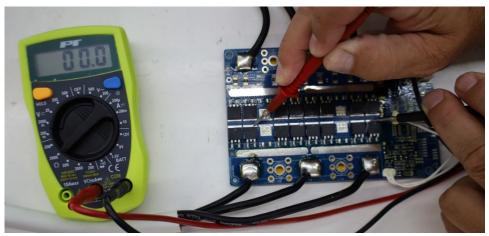




#### LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery

For example, as demonstrated by testing the electrical continuity using a multimeter, the drains of the switches of the LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery are connected, as shown by the nominal resistance measured between the drains of opposed MOSFETs.





[14d] said parallel configuration of the plurality of solid state switches being connected in

The LiTime 12V 100Ah Group 24 Deep Cycle LiFePO4 Lithium Battery includes said parallel configuration of the plurality of solid state switches (4) being connected in series with the one or more cells (7) between the positive (10) and negative terminals (11) of the battery pack.

US9,412,994 Claim Element series with said one or more cells between said positive and negative terminals of the battery pack.

